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Dyskinesias, tics, and psychosis: Issues for the next Diagnostic and Statistical Manuel of Mental Disorders

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Given the recent attention to movement abnormalities in psychosis spectrum disorders (e.g., prodromal/high-risk syndromes, schizophrenia) (Mittal et al., 2008; Pappa and Dazzan, 2009), and an ongoing discussion pertaining to revisions of the Diagnostic and Statistical Manuel of Mental Disorders (DSM) for the upcoming 5th edition, we would like to take this opportunity to highlight an issue concerning the criteria for tic disorders, and how this might affect classification of dyskinesias in psychotic spectrum disorders.

Rapid, non-rhythmic, abnormal movements can appear in psychosis spectrum disorders, as well as in a host of commonly co-occurring conditions, including Tourette's Syndrome and Transient Tic Disorder (Kerbeshian et al., 2009). Confusion can arise when it becomes necessary to determine whether an observed movement (e.g., a sudden head jerk) represents a spontaneous dyskinesia (i.e., spontaneous transient chorea, athetosis, dystonia, ballismus involving muscle groups of the arms, legs, trunk, face, and/or neck) or a tic (i.e., stereotypic or patterned movements defined by the relationship to voluntary movement, acute and chronic time course, and sensory urges). Indeed, dyskinetic movements such as dystonia (i.e., sustained muscle contractions, usually producing twisting and repetitive movements or abnormal postures or positions) closely resemble tics in a patterned appearance, and may only be visually discernable by attending to timing differences (Gilbert, 2006).

When turning to the current DSM-IV TR for clarification, the description reads: "Tic Disorders must be distinguished from other types of abnormal movements that may accompany general medical conditions (e.g., Huntington's disease, stroke, Lesch-Nyhan syndrome, Wilson's disease, Sydenham's chorea, multiple sclerosis, postviral encephalitis, head injury) and from abnormal movements that are due to the direct effects of a substance (e.g., a neuroleptic medication)". However, as it is written, it is unclear if psychosis falls under one such exclusionary medical disorder. The "direct effects of a substance" criteria, referencing neuroleptic medications, further contributes to the uncertainty around this issue. As a result, ruling-out or differentiating tics in psychosis spectrum disorders is at best, a murky endeavor.

Historically, the advent of antipsychotic medication in the 1950s has contributed to the confusion about movement signs in psychiatric populations. Because neuroleptic medications produce characteristic movement disorder in some patients (i.e. extrapyramidal side effects), drug-induced movement disturbances have been the focus of research attention

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in psychotic disorders. However, accumulating data have documented that spontaneous dyskinesias, including choreoathetodic movements, can occur in medication naïve adults with schizophrenia spectrum disorders (Pappa and Dazzan, 2009), as well as healthy first-degree relatives of chronically ill schizophrenia patients (McCreadie et al., 2003). Taken together, this suggests that movement abnormalities may reflect pathogenic processes underlying some psychotic disorders (Mittal et al., 2008; Pappa and Dazzan, 2009).

More specifically, because spontaneous hyperkinetic movements are believed to reflect abnormal striatal dopamine activity (DeLong and Wichmann, 2007), and dysfunction in this same circuit is also proposed to contribute to psychosis, it is possible that spontaneous dyskinesias serve as an outward manifestation of circuit dysfunction underlying some schizophrenia-spectrum symptoms (Walker, 1994). Further, because these movements precede the clinical onset of psychotic symptoms, sometimes occurring in early childhood (Walker, 1994), and may steadily increase during adolescence among populations at high-risk for schizophrenia (Mittal et al., 2008), observable dyskinesias could reflect a susceptibility that later interacts with environmental and neurodevelopmental factors, in the genesis of psychosis.

In adolescents who meet criteria for a prodromal syndrome (i.e., the period preceding formal onset of psychotic disorders characterized by subtle attenuated positive symptoms coupled with a decline in functioning), there is sometimes a history of childhood conditions which are also characterized by suppressible tics or tic like movements (Niendam et al., 2009). On the other hand, differentiating between tics and dyskinesias has also complicated research on childhood disorders such as Tourette syndrome (Kompoliti and Goetz, 1998; Gilbert, 2006).

We propose consideration of more explicit and operationalized criteria for differentiating tics and dyskinesias, based on empirically derived understanding of neural mechanisms. Further, revisions of the DSM should allow for the possibility that movement abnormalities might reflect neuropathologic processes underlying the etiology of psychosis for a subgroup of patients. Psychotic disorders might also be included among the medical disorders that are considered a rule-out for tics.

Related to this, the reliability of movement assessment needs to be improved, and this may require more training for mental health professionals in movement symptoms. Although standardized assessment of movement and neurological abnormalities is common in research settings, it has been proposed that an examination of neuromotor signs should figure in the assessment of any patient, and be as much a part of the patient assessment as the mental state examination (Picchioni and Dazzan, 2009).

To this end it is important for researchers and clinicians to be aware of differentiating characteristics for these two classes of abnormal movement. For example, tics tend to be more complex than myoclonic twitches, and less flowing than choreoathetodic movements (Kompoliti and Goetz, 1998). Patients with tics often describe a sensory premonition or urge to perform a tic, and the ability to postpone tics at the cost of rising inner tension (Gilbert, 2006). For example, one study showed that patients with tic disorders could accurately distinguish tics from other movement abnormalities based on the subjective experience of some voluntary control of tics (Lang, 1991). Another differentiating factor derives from the relationship of the movement in question to other voluntary movements. Tics in one body area rarely occur during purposeful and voluntary movements in that same body area whereas dyskinesia are often exacerbated by voluntary movement (Gilbert, 2006). Finally, it is noteworthy that tics wax and wane in frequency and intensity and migrate in location over time, often becoming more complex and peaking between the ages of 9 and 14 years (Gilbert, 2006). In the case of dyskinesias among youth at-risk for psychosis, there is

evidence that the movements tend to increase in severity and frequency as the individual approaches the mean age of conversion to schizophrenia spectrum disorders (Mittal et al., 2008).

As revisions to the DSM are currently underway in preparation for the new edition (DSM V), we encourage greater attention to the important, though often subtle, distinctions among subtypes of movement abnormalities and their association with psychiatric syndromes.

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